CLAIMS

What is claimed is:

5   1. A switch matrix, comprising:

at least one row conductor; and

at least one column conductor, wherein at least one of said at least one row conductor and said at least one column conductor is capable of being driven with a predetermined voltage level, and is capable

10   of having a voltage level read therefrom.

       2. The switch matrix according to claim 1, further comprising:

at least one switching element adapted to connect said at least row conductor to said at least one column conductor.

15   3. The switch matrix according to claim 2, wherein:

a total number of said at least one switching element exceeds a number obtained by multiplying together a number of said at least one row conductor and a number of said at least one column

20   conductor.

       4. The switch matrix according to claim 2, wherein:

said at least one switching element is a temporary connection type switching element.

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       5. The switch matrix according to claim 2, wherein:

said at least one switching element is a push button.

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6. The switch matrix according to claim 2, wherein:

said at least one switching element is a persistent connection type switching element.

7. The switch matrix according to claim 2, wherein:

said at least one switching element is a switch.

8. The switch matrix according to claim 2, wherein:

said total number of said at least one switching element is twice said number obtained by multiplying together said number of said at least one row conductor and said number of said at least one column conductor.

9. A switch matrix, comprising:

a plurality row conductors;

a plurality of column conductors; and

a plurality of switching elements adapted to connect at least one of said plurality of row conductors to at least one of said plurality of column conductors,

wherein a total number of switching elements of said plurality of switching elements exceeds a product of a total number of row conductors of said plurality of row conductors and a total number of column conductors of said plurality of column conductors.

10. The switch matrix according to claim 9, wherein:

said total number of switching elements is twice said product of said total number of row conductors and said total number of column conductors.

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11. The switch matrix according to claim 9, wherein:

said plurality of switching elements is a plurality of push buttons.

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12. The switch matrix according to claim 9, wherein:

said plurality of switching elements is a plurality of switches.

13. The switch matrix according to claim 9, wherein:

said plurality of switching elements is a plurality of push

10 buttons and a plurality of switches.

14. A switch matrix, comprising:

a plurality of row conductors;

a plurality of column conductors;

15 at least one switching element adapted to momentarily connect at least one of said plurality of row conductors to at least one of said plurality of column conductors; and

at least one switching element adapted to persistently connect at least one of said plurality of row conductors to at least one of

20 said plurality of column conductors.

15. The switch matrix according to claim 14, wherein:

said at least one switching element adapted to momentarily connect said at least one of said plurality of row conductors to said at

25 least one of said plurality of column conductors is at least one push button; and

said at least one switching element adapted to persistently connect said at least one of said plurality of row conductors to said at least one of said plurality of column conductors is at least one switch.

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16. A method of scanning a switch matrix, comprising:

driving one at a time at least one of a plurality of row conductors with a predetermined voltage level;

monitoring each of a plurality of column conductors while one of said plurality of row conductors is being driven with said predetermined voltage level;

driving one at a time at least one of a plurality of column conductors with a predetermined voltage level; and

monitoring each of a plurality of row conductors while one of said plurality of column conductors is being driven with said predetermined voltage level.

17. The method of scanning a switch matrix in accordance with claim 16, further comprising:

detecting a closure of a first one of a plurality of switching elements based on a presence of said predetermined voltage level during monitoring of said plurality of row conductors; and

detecting a closure of a second one of a plurality of switching elements different from said first one of said plurality of switching elements, said detection of said closure of said second one of plurality of switching element being based on a presence of said predetermined voltage level during monitoring of said plurality of column conductors.

18. The method of scanning a switch matrix in accordance with claim 17, wherein:

said plurality of switching elements is a plurality of push button.

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19. The method of scanning a switch matrix in accordance with claim 17, wherein:

said plurality of switching elements is a plurality of switches.

5   20. The method of scanning a switch matrix in accordance with claim 17, wherein:

said plurality of switching elements is a plurality of push button and a plurality of switches.

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